

Application No. 10/789,490
Response to Office Action

Customer No. 01933

R E M A R K S

Reconsideration of this application, as amended, is respectfully requested.

THE SPECIFICATION

The specification has been amended to correct some minor informalities of which the undersigned has become aware.

No new matter has been added, and it is respectfully requested that the amendments to the specification be approved and entered.

THE CLAIMS

New independent claim 8 has been added to more clearly recite the distinguishing features of the present invention, as described in the specification at, for example, page 11, line 2 to page 13, line 1.

In addition, claims 2 and 5 have been amended to depend from new claim 8, claim 4 has been amended to depend from claim 3, and claim 5 has been amended to make a minor clarifying amendment.

No new matter has been added, and it is respectfully requested that the addition of new claim 8 and the amendments to claims 2, 4 and 5 be approved and entered.

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THE PRIOR ART REJECTION

Claims 1-5 were rejected under 35 USC 102 as being anticipated by USP 6,194,869 ("Peterzell"); and claims 6 and 7 were rejected under 35 USC 103 as being obvious in view of the combination of Peterzell and USP 5,592,070 ("Mino"). These rejections, however, are respectfully traversed with respect to the claims as set forth hereinabove.

According to the present invention as recited in new independent claim 8, a battery pack with a charge control function is provided which comprises an overdischarge control circuit, an overcharge control circuit, and a charge control circuit. As recited in new independent claim 8, the overdischarge control circuit detects an overdischarge mode of a secondary battery and supplies an overdischarge detection signal to a discharge control switch when the overdischarge mode is detected; the overcharge control circuit detects an overcharge mode of the secondary battery and supplies an overcharge detection signal to a charge control switch when the overcharge mode is detected; and the charge control circuit performs charge control of the secondary battery by controlling the charge control switch.

That is, according to the present invention as recited in new independent claim 8, the charge control switch (FET 30) is controlled by the overcharge control circuit (220) and is

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controlled by the charge control circuit (IC 600) to interrupt a current supplied to the charger (500). Thus, the one charge switch can perform both the charge control and the overcharge control.

With this structure, in the battery pack according to the claimed present invention, the charge control FET performs the overcharge control of the overcharge control circuit and performs the constant-current control and the constant-voltage control of the charge control IC. Consequently, both of the charge control and the overcharge control can be achieved by the one charge control FET serving as a charge control device.

As recognized by the Examiner, Peterzell discloses a self protection IC 28, and switches 30 and 32 that are controlled by the IC 28 to protect from overcharging and overdischarging.

It is respectfully submitted, however, that Peterzell does not disclose, teach or suggest the simplified structure of the claimed present invention whereby a charge control switch is controlled by both an overcharge control circuit and a charge control circuit to perform both overcharge control and charge control.

Mino, moreover, has merely been cited for the disclosure of heat detection elements.

Accordingly, it is respectfully submitted that the present invention as recited in new independent claim 8, and claims 2 and

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4-7 depending therefrom, clearly patentably distinguishes over Peterzell and Mino, taken singly or in combination, under 35 USC 102 as well as under 35 USC 103.

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In view of the foregoing, entry of this Amendment, allowance of the claims and the passing of this application to issue are respectfully solicited.

If the Examiner has any comments, questions, objections or recommendations, the Examiner is invited to telephone the undersigned for prompt action.

Respectfully submitted,



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